ABSTRACT OF THE DISCLOSURE

An apparatus for branch metric computation and add-compare-select operation in a rate $1/n$ Viterbi decoder with a constraint length of K. The apparatus of the invention

5   includes a branch metric generator and an add-compare-select unit. The branch metric generator calculates a plurality of branch metrics each of which is a measure between a currently received data symbol and a corresponding branch label. The add-compare-select unit can generate respective

10 decision bits for a pair of odd and even states at next instant with a novel pre-computational architecture. Further, a local winner between the odd and even states is predetermined in a manner providing reduction of the activity required by the computation. Thus the add-compare-

15 select unit outputs a path metric of the local winner, whereby a saving of half the output number of path metrics is achieved.